Title: HANDLING OF ELECTROSTATIC DISCHARGE REPAIRABLES	Number: D65-15-04	Revision No.: OD	Effective Date: 31 JAN 97
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STANDARD OPERATING PROCEDURE D65-15-04

From: D65
To: D65 Division

Subj: HANDLING OF ELECTROSTATIC DISCHARGE REPAIRABLES

Ref: (a) MIL-STD 1686A, dtd 8 August 1988
(b) ISO-9000, dtd 2 May 1980
(c) MIL-E-17555

1. Purpose. To establish a system and provide instructions for handling of electrostatic discharge (ESD) equipment. In accordance with the requirements established by reference (a) and (b), management of ESD items includes packaging and handling of electrical/electronic parts, assemblies, and equipment which are susceptible to damage by static electricity

2. Scope and Application. This procedure applies to civilian and contractor personnel involved in packaging, repairing, overhauling, handling, and shipment of electronic equipment

3. Policy. Recognizing the unique requirements that exist within the NRAD Depot Code D65 and the Navy's role pertaining to (ESD) for current and future requirements, Code D65 will fully comply with all DOD rules, regulations, and policies, as set forth in reference (a) and (b).

4. Procedures. The procedures outlined below will minimize the potential problems as related to packing and handling of ESD equipment.

a. Unpacking - When unpacking not-ready-for-issue (NRFI) Depot Level Repairables (DLR), the handler shall wear wrist strap and cord. The unpacked DLR equipment shall be placed in a static-shielded bag for delivery to the work center.

b. Repairing - When overhauling, repairing, and/or testing DLR's, the technicians shall be properly grounded with wrist straps with cords, table mat, and floor mat.

c. Protective Covering - Parts and assemblies shall be enclosed in ESD protective coverings or packaging when not being worked on or when outside protected areas.

d. Packaging - ESD protective packaging shall be in accordance with MIL-E-17555 for ESD items. In addition, ESD protective caps shall be used on equipment external connectors that are connected to ESD parts and assemblies within the equipment

5. Definitions. The following definitions are provided to increase understanding of the procedure and its applicability.

a. ESD-Sensitive Module/Equipment. Any equipment that because of its function, characteristics, and complexities could be damage by improper packaging and handling. Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies, and Equipment (Excluding Electrically-Initiated Explosive Devices)

b. Electrostatic Discharge (ESD) - ESD is for protection of electrical and electronic assemblies, and equipment and their constituent parts susceptible to damage from discharges of up to 15,999 volts. Electrostatic charges are generated by the relative motion, physical separation of materials or flow of solids, liquids, or gases. ESD is a transfer of electrostatic charge between bodies of different electrostatic potentials caused by direct contact or induced by electrostatic field

c. ESD Protective Material - Material capable of one or more of the following:

(1) Limiting the generation of static electricity
(2) Rapidly dissipating electrostatic charges over its surface or volume
(3) Providing shielding from ESD spark discharge or electrostatic fields

ESD protective materials are classified in accordance with their surface resistivity (or alternate conductivity) as conductive, static dissipative or anti-static.

d. ESD Protective Packaging - Packaging with protective materials to prevent ESD damage to ESDS items.

e. Anti-Static Material - ESD protective material having a surface resistivity greater than 10 but greater than 10 (to the fourteenth power) ohms per square inch.

f. Conductive Material - ESD protective material having a surface resistivity of 10^5 ohms per square inch maximum.

g. Electrical and Electronic Part - A part such as a microcircuit, discrete semiconductor, resistor, capacitor, thick or thin film device, or piezoelectric crystal.

h. Handled or Handling - Actions in which items are hand-manipulated or machine-processed during actions such as inspections, manufacturing, assembling, processing, testing, repairing, reworking, packaging, marking, and/or labeling.

i. Insulating Material - Material having surface resistivities greater than 10^9 but less than 10^{14} ohms per square.

j. Protected Area - An area which is constructed and equipped with the necessary ESD protective materials and equipment to limit ESD voltage below the sensitivity level of ESDS item handled therein.

k. Protective Handling - Handling of ESDS items in a manner to prevent damage from ESD.

6. Required Equipment. The following equipment will be worn and/or used as described during operations involving ESD items:

a. Wrist Strap Tester
b. Wrist Strap and Cord
c. Table Mat
d. Floor Mat.
e. Static-Shielding Bags

7. Training. All government employees and contractor personnel shall read and understand this SOP and sign a training roster as proof of having received ESD training before performing any production operation involving ESD items.

8. Responsibilities. Responsibilities for implementation of and adherence to this SOP are identified below.

a. Division - Division management is responsible for ensuring that the requirements of this SOP are followed

b. Division Personnel - Division personnel who perform the operations identified in the SOP will be required to required to complete the initial training. Personnel will receive refresher training at least annually.

c. Quality Assurance - Quality Assurance will monitor the operations identified in this SOP for compliance

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